

AMENDMENTS TO THE CLAIMS

Claim 1 (Cancelled)

Claim 2 (Currently Amended) A wireless network control system comprising:

_____ a plurality of base stations that detect and communicate with a mobile terminal;

_____ a plurality of relay stations, each relay station being associated with a respective base station of the plurality of base stations, and each relay station relaying a communication between the respective base station and the mobile terminal; and

_____ a wireless network control apparatus that controls communication between the plurality of base stations and the mobile terminal[[:]],

_____ wherein the wireless network control apparatus comprises[[:]],

_____ a management table that stores information-on related to a relay station, of the plurality of relay stations, that-which can be communicatively connected to the respective base station, the stored information related to the relay station being stored in relation to the respective base station-stations;

_____ a search section-means that, when more than one base station of the plurality of the base stations detect the mobile terminal, searches for a base station, from the base stations that detected the mobile terminal, that-which can be communicatively connected to respective relay stations associated with the base stations that-which detected the mobile terminal, from the base stations which detected the mobile terminal, the search section performing the search based on the management table; and

_____ and-a control section-means that allows the communication connection to be established

between the base station identified by the search ~~searched by the search~~ means and the respective relay stations associated with the base stations that detected the mobile terminal and that can be communicatively connected to the base station identified by the search[[:]],

wherein the base station identified by the search comprises a combining section ~~means~~ that performs diversity combining by combining ~~of~~ radio signals received from the mobile terminal ~~received~~ through the respective relay stations, and

wherein, when more than one base station of the plurality of base stations detect the mobile terminal in an accommodation area, the base station identified by the search (i) establishes the communication connection to a relay station associated with another base station that detected the mobile station, and (ii) subsequently performs the diversity combining by combining the radio signals received from the mobile terminal through the relay station associated with the base station identified by the search and radio signals received from the mobile terminal through the relay station associated with the another base station.

Claim 3 (Currently Amended) The wireless network control system according to claim 2-
~~wherein:~~ wherein, when ~~a~~ the mobile terminal is detected based on information indicating a radio field intensity received from the mobile terminal, the search ~~means~~ section searches for a base station that can be communicatively connected to relay stations that have relayed the information indicating the radio field intensity.

Claim 4 (Currently Amended) The wireless network control system according to claim 2-
~~wherein:~~ wherein the control section ~~means~~ of the wireless network control apparatus

disconnects a communicative connection between a base station other than the base station identified by the search-searched-by-the-search-means and the respective relay station associated therewith.

Claim 5 (Currently Amended) The wireless network control system according to claim 2 wherein:

each the-base station comprises a relay-station-information transmission section-means that transmits information, to the wireless network control apparatus, indicating relay stations to which the respective base station can be communicatively connected to the wireless network control apparatus; and
— and the wireless network control apparatus comprises a management-table update section-means that updates the management table based on the information transmitted from the relay-station-information transmission section of each indicating the communicatively connectable relay stations transmitted from the base station.

Claim 6 (Currently Amended) AThe wireless network control system comprising- according to claim 1 wherein: said base station comprises;

a plurality of base stations that detect and communicate with a mobile terminal; and
a plurality of relay stations, each relay station being associated with a respective base station of the plurality of base stations, and each relay station relaying a communication between the respective base station and the mobile terminal;

wherein each respective base station comprises:

an inter-base station communication section means for communicating with another base station~~said another base station~~;

a management table that stores information~~on~~ related to a relay station, of the plurality of relay stations, that~~which~~ can be communicatively connected to~~said the respective~~ base station;

a determination section means that, when the mobile terminal is detected by the respective base station, determines whether or not~~said the~~ another base station that is in communication with the ~~same~~ mobile terminal exists~~, exist or not the determination being~~ based on information obtained from the~~said~~ another base station~~obtained~~ by communication using the inter-base station communication ~~means~~ section;

a search section means that, when ~~said the~~ another base station that is in communication with the ~~same~~ mobile terminal detected by the respective~~said~~ base station is determined to exist, searches for a base station, from the base stations that detected the mobile terminal, a base station that~~which~~ can be communicatively connected to~~a the~~ the relay station associated with the respective~~said~~ base station and a relay station associated with~~said the~~ another base station~~which communicate~~ that communicates with the~~same~~ mobile terminal, the search section performing the search based on the management table;

a control section that communicates a control signal through the inter-base station communication section such that the communication connection is established between the base station identified by the search, and the respective relay stations that can be communicatively connected to the base station identified by the search~~the respective relay stations~~; and

a and-combining section means that performs a diversity combining by combining

of radio signals received from the mobile terminal ~~received through the respective~~ a plurality of relay stations,

wherein, when more than one base station of the plurality of base stations detect the mobile terminal in an accommodation area, the base station identified by the search (i) establishes the communication connection to a relay station associated with another base station that detected the mobile terminal, and (ii) subsequently performs the diversity combining by combining the radio signals received from the mobile terminal through the relay station associated with the base station identified by the search and radio signals received from the mobile terminal through the relay station associated with the another base station.

Claim 7 (Currently Amended) The wireless network control system according to claim 6, wherein:

wherein, when ~~the a~~ mobile terminal is detected based on ~~the~~ information indicating ~~the a~~ radio field intensity received from the mobile terminal, the determination ~~section means~~ determines whether or not ~~said~~ another base station that ~~receive~~ received the information indicating the radio field intensity of the ~~same~~ mobile terminal exists ~~exist or not, and~~

wherein and the search ~~section means~~ searches for a base station that can be communicatively connected to a relay station that has ~~have~~ relayed the information indicating the radio field intensity.

Claim 8 (Currently Amended) The wireless network control system according to claim 6, wherein[[:]] the control ~~section means~~ of ~~said the~~ base station identified by the search

communicates the control signal through the inter-base station communication ~~section-means~~ such that the communication connection between a base station other than the base station identified by the search ~~searched by the search-means~~ and the respective relay stations is disconnected.

Claim 9 (Currently Amended) The wireless network control system according to claim 6 wherein ~~[[:]] said the~~ base station identified by the search transmits information on the communication connection with ~~a the~~ the mobile terminal within an accommodation cell to ~~the said~~ another base station through the inter-base station communication ~~section-means~~.

Claim 10 (Currently Amended) A wireless network control apparatus that controls a radio access network having a plurality of base stations ~~which that detect and communicate with a~~ mobile terminal-communicate with a mobile terminal, and having a plurality of relay stations, ~~each relay station being associated~~ provided in association with a ~~the~~ respective base station of the plurality of base stations, and each relay station relaying a to-relay communication between the respective base station and the mobile terminal ~~and the base stations~~, the wireless network control apparatus comprising:
_____ a management table that stores information ~~on related to a relay station, of the plurality of~~ relay stations, that-which can be communicatively connected to the respective base station, the stored information related to the relay station being stored in relation to the respective base station-stations;

a search ~~section-means~~ that, when more than one base station of the plurality of base

~~stations detect of the plurality of base stations detect a~~ the mobile terminal, searches for a base station, ~~from the base stations that detected the mobile terminal,~~ that can be communicatively connected to the respective relay stations associated with the base stations that detected the mobile terminal ~~from the plurality of base stations based on the management table,~~ the search section performing the search based on the management table; and

~~and a control section means~~ that, in order to allow the base station identified by the search ~~searched by the search means~~ to perform diversity combining ~~by combining of~~ radio signals received from the mobile terminal, the received radio signals being relayed by the relay stations associated with the base stations ~~that which~~ detected the mobile terminal, respectively, (i) establishes the communication connection between the base station identified by the search and the respective relay stations, and (ii) allows the radio signals to be transmitted from the respective relay stations ~~respective relay stations~~ to the base station identified by the search.

Claim 11 (Currently Amended) A base station that can communicate with a mobile terminal through a relay station, the base station comprising:

an inter-base station communication section means for communicating with another base station;

a management table that stores information ~~on~~ related to a relay station that is associated with the said base station, and stores information related to a relay station ~~that which~~ is associated with ~~said the~~ another base station and can be communicatively connected to ~~said the~~ base station;

a determination section means that, when ~~the a~~ mobile terminal is detected by the base

station, determines whether ~~or not the said~~ another base station that is in communication with the same mobile terminal ~~exists-exist or not~~, the determination being based on information obtained from said the another base station ~~obtained by communicating with the another base station-~~ ommunication using the inter-base station communication section means;

a search section means that, when ~~the said~~ another base station that is in communication with the ~~same~~ mobile terminal detected by ~~said the~~ base station is determined to exist, searches for a base station that can be communicatively connected to the relay station associated with ~~the said~~ base station and the relay station associated with ~~the said~~ another base station, the search section performing the search based on the management table;

a control section that communicates a control signal through the inter-base station communication section such that the communication connection is established between the base station identified by the search and, as the respective relay stations, the relay station associated with the base station and the relay station associated with the another base station; and

~~and a combining section means~~ that performs a diversity combining by combining of radio signals received from the mobile terminal ~~received through said the~~ respective relay stations.

Claim 12 (Cancelled)

Claim 13 (Currently Amended) A wireless network control method that controls a radio access network having (i) a plurality of base stations ~~which that detect and~~ communicate with a mobile terminal, and (ii) a plurality relay stations, each relay station being associated with a

~~provided in association with the respective base station of the plurality of base stations, and each relay station relaying to relay a communication between the respective base station and the mobile terminal and the base station, the wireless network control method comprising:~~

~~a mobile-terminal detection step of detecting the mobile terminal where a wireless-network control apparatus detects the mobile terminal;~~

~~a search step of where, when more than one base station of the plurality of base stations detect the mobile terminal in the mobile-terminal detection step, searching, based on a management table, for a one base station of the base stations which that detected the mobile terminal is searched from the base stations which detected the mobile station based on a management table, wherein searched the base-based station identified by the searching is a base station that can be communicatively connected to respective relay stations-station associated with the base stations-which that detected the mobile station, and wherein the management table stores information-on related to relay stations that-which can be communicatively connected to the respective base stations, the stored information related to the relay stations being stored in relation to the respective base stations; and~~

~~and a control step of where, in order to allow-said one of the base station identified by the searching-stations searched by the search means to perform a diversity combining by combining-of radio signals received from the mobile terminal, the signals being relayed (i) relaying the radio signal through the relay stations associated with the base stations-which that detected the mobile station, respectively, and to perform by establishing the communication connection between-said one of the base station identified by the searching-stations and the respective relay stations-is established, and (ii) allowing the radio signals-are allowed to be transmitted from-said~~

the respective relay stations to said one of the base station identified by the searching stations.

Claim 14 (Currently Amended) A wireless network control method that controls a radio access network having (i) a plurality of base stations that detect and communicate with a mobile terminal, and (ii) a plurality of relay stations, each relay station being associated ~~provided in association with a~~ the respective base station of the plurality of base stations, and each relay station relaying a ~~to~~ relay communication between the respective base station and the mobile terminal and the base station, the wireless network control method comprising:

~~a mobile terminal detection step where~~ using a the first base station to detect ~~detects the~~ mobile terminal;

a determination step ~~of where~~, when the first base station detects the mobile terminal, determining whether or not another base station that is in communication with ~~to the same~~ mobile terminal exists ~~exist or not is determined, the determination being made~~ based on information obtained from ~~said another~~ other base stations;

a search step ~~of where~~, when ~~the said~~ another base station that is in communication with the mobile terminal detected by ~~said the first base station is determined to exist~~ ~~are determined to exist, searching, based on a management table, for~~ a base station that can be communicatively connected to ~~a the~~ relay station associated with ~~said the first~~ base station and a relay station associated with ~~said the~~ another base station ~~is searched based on a management table, wherein the management table stores information on related to the relay station associated with said the first base station and the relay station which is associated with said the another base station and can be communicatively connected to said the first base station;~~

_____ a control step ~~of where communicating~~ a control signal ~~is communicated~~ through an inter-base station communication ~~section, means~~ such that the communication connection is established between the base station ~~identified-searched~~ by the searching and the respective relay station associated with the first base station and the respective relay station associated with the another base station-search step and the respective relay stations; and

~~and~~ a combining step ~~that performs~~ of performing diversity combining by ~~combining of~~ radio signals received from the mobile terminal ~~received~~ through a plurality of relay stations.